THE OPEN UNIVERSITY OF SRI LANKA

Faculty of Engineering Technology

Department of Electrical and Computer Engineering

Diploma in Information Systems & Technology

ECX3162 – INTRODUCTION TO OBJECT ORIENTED PROGRAMMING

Final Examination – 2016/2017   Time Allowed: 3 hours

DATE: **23ʳᵈ July 2017**   TIME: **09.30 a.m – 12.30 p.m**

Instructions to Candidates

1. This is a **CLOSED BOOK** examination.
2. Answer question one (Q1) and two other questions

Q1 (Compulsory Question)

a) What is JVM in java?   [05 marks]

b) What is bytecode? Explain its usefulness while translating a Java program in different environments.   [05 marks]

c) Explain what is meant by the "scope" and "lifetime" of a variable with examples.[10 marks]

d) Explain the access modifiers 'private' and 'protected' in Java.   [10 marks]

e) Write a Java program to print the largest number of an array of integers.   [10 marks]

Q2

a) Write a Java program that will perform the following operations
   1. Create a class named 'Item'
   2. Add two private instance variables 'id' and 'name' inside class "Item".
   3. Add public getters and setters for the two instance variables inside the "Item" Class.
   4. Create the class named "Main" with a main method inside it, and create an instance of Item class inside the main method with following values.
   id = 100
   name = "Book"
   5. Use the getter method of name variable to print the name of the student instance created inside main method.

                                                                                        [15 marks]

b) Explain the difference between a variable in a class that is declared static and one that is not.
                                                                                        [05 marks]

c) Write a Java program to reverse a String in Java without using API functions   [10 marks]

Q3

   a) What is an abstract class in java? [05 marks]

   b) Explain what is meant by polymorphism using examples of overloading and overriding.

                                                  [10 marks]

   c) Write a java program to find the sum of prime numbers between 22 and 80 [15 marks]

Q4

   a) Explain the behavior of "String" in java comparing to primitive data types. [05 marks]

   b) Name and describe the use of 'final' keyword when it is used with a method, class and a class variable. [10 marks]

   c) Write a program that creates an array of five hard-coded floating-point values, then prints out just the second value. [15 marks]

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